THE ROYAL
AUSTRALIAN NAVY
THE ROYAL AUSTRALIAN NAVY
The Royal Australian Navy is playing a vital role in meeting our nation’s current and future defence needs. This requires appropriate and effective technology as well as highly trained professional personnel.

Australia’s policy of defence self-reliance is set out in the 1987 White Paper on Defence. Defence self-reliance gives priority to the ability to defend ourselves independently with our own resources. It has three main elements:
— the maintenance and development of capabilities for the defence of Australia and its interests;
— the maintenance of alliance links with the United States;
— the promotion of strategic stability and security in our region through associations and alliances.

AUSTRALIA’S STRATEGIC SITUATION

No country in our region presently has the capability or the motivation to carry out and sustain a major attack on Australia since none has the necessary large-scale, appropriately trained and equipped military forces. Even if intentions were to change, a long period of preparation would be necessary and this could not be done in secret.

This does not, however, remove the responsibility to provide an appropriate level of defence for Australia. There is the capability within our region to carry out ‘low level’ actions. These include intrusion of our sea and air space and harassment of aircraft and shipping, harassment of remote settlements and offshore resource areas and attacks on northern installations and infrastructure.

These sorts of threats are most unlikely given Australia’s good relations with neighbouring countries, but they could develop quickly if our presently favourable strategic situation were to deteriorate.

Because the capability to launch them exists, the ability to counter them is and must be continuously maintained in the Australian Defence Force (ADF). The ADF comprises the Royal Australian Navy, the Australian Army, the Royal Australian Air Force and a tri-Service headquarters known as HQADF.

DEFENCE IN DEPTH

Australia’s self-reliant defence policy is pursued through the strategy of ‘defence in depth’. This demands that we have an Australian Defence Force capable of meeting an adversary with a comprehensive range of military capabilities, both offensive and defensive. Defence in depth also emphasises maritime operations and the pursuit of material programs to ensure maritime capabilities remain appropriate.

The Defence Force capabilities which we are developing for the independent defence of Australia are also well suited to cooperation with the United States and neighbouring countries in joint defence exercises and other activities, within the framework of our alliances and regional associations.

Essentially, defence in depth requires that the ADF continues to develop capabilities for:
— intelligence and surveillance;
— strike and interdiction (interception and destruction of hostile forces) in our sea and air approaches; and
— land and inshore defence.

THE ROLE OF THE ROYAL AUSTRALIAN NAVY

Royal Australian Navy (RAN) capabilities are called upon in every aspect of defence in depth. The effective defence of Australia requires that our sea and air approaches to the north remain secure and our ports and coastal shipping lanes are protected.

Effective intelligence and surveillance requires that we closely monitor developments in our area of interest. Elements of the Fleet play a major role in surveillance through patrols in our sea approaches and are well equipped for anti-submarine surveillance. The entry into service of new Seahawk helicopters will considerably enhance the surveillance capabilities of the surface fleet. These helicopters are highly advanced and will operate from the guided missile frigates. They are flexible enough to be able to perform a variety of tasks including surveillance, anti-submarine warfare and weapons targeting.

Strike and interdiction calls for capabilities to intercept and defeat an adversary in our sea and air approaches. Our 12 frigates and destroyers and our six submarines make up a formidable force in regional terms. Projects presently under way will add more advanced submarines and surface ships to our fleet.

The new submarine project will give Australia a fleet of six of the world’s most advanced diesel electric submarines which will provide the nation with a force which is unique in the region. These vessels are based on a Swedish design and will be built at Port Adelaide with large scale involvement by Australian industry. It is expected that the first of the submarines will enter service in the mid 1990s and the existing fleet of six Oberon Class submarines will be gradually phased out.

The RAN’s surface fleet is being expanded to contain three broad levels of surface ship each intended for specific tasks.

FRONT LINE SHIPS

The first level of highly capable ships is made up of the guided missile destroyers (DDGs) and the guided missile frigates (FFGs). They are the front line surface combatants of the RAN and are equipped with sophisticated sensors and weapons. Two additional guided missile frigates are presently being built at Williamstown dockyard in Melbourne. These ships, to be named Melbourne and Newcastle respectively, will join our existing fleet of four guided missile frigates in the early 1990s.

SECOND LEVEL SHIPS

Light patrol frigates, known as ANZAC ships will form the second level of the RAN surface fleet. The ANZAC ship project, presently under way in collaboration with New Zealand will expand the RAN’s surface fleet from 12 to 16 or 17 vessels. These ships will be able to operate alone, or with the DDGs and the FFGs in more intensive operations. During the period of construction our five destroyer escorts will be phased out.

THIRD LEVEL SHIPS

At the third level are the Navy’s patrol boats which are suitable for coastal operations. They can undertake tasks such as the patrol of Australia’s fisheries and law enforcement and...
can also play a role in coastal, port and harbour defence in a defence emergency. The present Fremantle class of patrol boats will remain in service well into the 1990s.

The Navy is also developing an effective mine countermeasures force for inshore defence operations. An anti-mine capability is important to keep coastal waters and harbours clear of mines. A new class of glass reinforced plastic minehunting catamaran is being developed in Australia for hunting mines inshore. Minesweepers are also being developed based on modifications to what are known as ‘craft of opportunity’, such as fishing trawlers which are suited to minesweeping tasks.

The RAN’s fleet also presently includes seven amphibious vessels — a heavy landing ship and six heavy landing craft. These vessels provide sea transport for the Australian Defence Force. The fleet’s capabilities have been further enhanced by the acquisition of HMAS Westralia, which along with HMAS Success, will provide under-way replenishment. The RAN is also responsible for charting one eighth of the earth’s ocean area on hydrographic surveys as well as playing an important role in oceanography and maritime support for the other Services.

The Navy’s ability to operate in our northern and northwestern coastal waters as well as the Indian Ocean is being enhanced with the development of HMAS Stirling near Perth as home port for half the fleet of the RAN. Already a number of destroyers, patrol boats and a submarine are based there.

Sydney Harbour is the home of the major fleet base, a submarine base at HMAS Platypus, a mine countermeasures base at HMAS Waterhen as well as a number of ancillary storage and repair facilities.

**THE ORGANISATION OF THE ROYAL AUSTRALIAN NAVY**

The professional head of the Royal Australian Navy is the Chief of Naval Staff (CNS). The CNS heads a full time permanent force of 15600 people and a further 4325 in the Naval Reserve. In addition there are 5100 civilian personnel employed by Navy.

The CNS administers the RAN through the RAN’s three geographical commands. The Maritime Commander is in charge of ship’s crews, submarines, mines, mine countermeasures craft, naval aircraft and operational bases. The Support Commander is in charge of the training of personnel and the provision of logistic support for the fleet.

Senior officers serve as Naval Officers Commanding at these schools are tailored for both start of career and continued training.

The effective operation of the RAN depends upon making the most of all available human resources and this includes those men and women who serve on a part time basis. The Australian Defence Force Reserves have an important role in the self-reliant defence force behind Federation and, in 1911, King George V approved the designation ‘Royal Australian Navy’. The RAN initially modelled itself on the Royal Navy and played a distinguished role in Empire Defence in World War I through activity in the Indian Ocean, the Pacific, the Mediterranean, and the North Sea. World War II saw the RAN operating in all the world’s oceans, and also the Navy’s greatest loss, that of HMAS Sydney in November 1941. Today the men and women of the RAN are professionally proud and determined to uphold the great traditions and high standards of the Navy.

**THE ROYAL AUSTRALIAN NAVY AS A PROVIDER OF SKILLS**

Today’s RAN uses some of the most advanced equipment in the nation and the training of the people who use it has a very high priority, both on joining and throughout their careers. The range of careers open to women in the Navy has widened considerably in recent years and the percentage of women serving in the RAN has risen from 6 per cent in 1984 to 10.4 per cent in 1988.

The RAN’s main basic training establishment is HMAS Cerberus at Westernport in Victoria. Trade specialists go on from Cerberus to gain their skills at HMAS Nirimba, which is also the apprentice training establishment at Quaker’s Hill west of Sydney. One of Nirimba’s functions is the training of general duties officers who then move on after training to a specialist branch and receive more training to serve for a longer period.

Officers receive their tertiary education at the Australian Defence Force Academy in Canberra, their naval training at HMAS Watson in Sydney. There are the RAN Surface Warfare School and the Submarine Warfare System School. The courses which are offered at these schools are tailored for both start of career and continued training.

The effective operation of the RAN depends upon making the most of all available human resources and this includes those men and women who serve on a part time basis. Australian Defence Force Reserves have an important role to play in the self-reliant defence force behind Federation and, in 1911, King George V approved the designation ‘Royal Australian Navy’. The RAN initially modelled itself on the Royal Navy and played a distinguished role in Empire Defence in World War I through activity in the Indian Ocean, the Pacific, the Mediterranean, and the North Sea. World War II saw the RAN operating in all the world’s oceans, and also the Navy’s greatest loss, that of HMAS Sydney in November 1941. Today the men and women of the RAN are professionally proud and determined to uphold the great traditions and high standards of the Navy.

**A BRIEF HISTORY**

The Colonies of New South Wales, Victoria, Queensland and South Australia raised Naval Forces which operated for four decades prior to 1901.

Concerns about defence were a driving force behind Federation and, in 1911, King George V approved the designation ‘Royal Australian Navy’. The RAN initially modelled itself on the Royal Navy and played a distinguished role in Empire Defence in World War I through activity in the Indian Ocean, the Pacific, the Mediterranean, and the North Sea. World War II saw the RAN operating in all the world’s oceans, and also the Navy’s greatest loss, that of HMAS Sydney in November 1941. The RAN also saw action during the Korean War, the Malaysian Confrontation and the Vietnam War.

In 1986 the RAN celebrated its 75th year of service. Spectacular reviews were staged on both this occasion and for Australia’s Bicentennial in 1988. Today the men and women of the RAN are professionally proud and determined to uphold the great traditions and high standards of the Navy.
The three guided missile destroyers — HMA Ships Perth, Hobart and Brisbane — are particularly versatile US built ships, generally regarded as the best balanced vessels built in modern times. Their main task is air defence of the Fleet, but they also have formidable anti-submarine and surface gunnery capabilities.

The DDGs' air defence capability is based on their Standard missile system with the launcher located near the stern, and its associated high definition radars.

Each DDG is also fitted with two Ikara missile systems. This long-range, anti-submarine system is Australian-designed and developed. The missile is automatically guided to the vicinity of a hostile submarine where a torpedo is released by parachute to home on the target.

The ships are fitted with modern combat data, sonar, radar, communications and electronic systems to provide the command with comprehensive information.

All three ships saw action in Vietnamese waters in the 1960s and 1970s where they served with distinction.

The ships underwent weapons systems updates in the late 1970s which included the fitting of modern data links and computerised data systems.

Each DDG has again been earmarked for a further update which will see the RAN maintain these frontline units until at least the late 1990s. Brisbane, the first, completed her update in 1988.

Perth, Hobart and Brisbane are the names of former RAN cruisers.

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<td>BRISBANE</td>
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Builders: Defoe Shipbuilding Co., USA

Displacement: 4,720 tonnes
Length: 133.2 metres
Beam: 14.3 metres

Armament: Two 5 inch automatic rapid fire guns, Standard anti-air missile system, two Ikara anti-submarine missile systems, two sets triple-mounted anti-submarine homing torpedoes.

Machinery: Two GE geared steam turbines driving two shafts.

Speed: More than 30 knots

Sips Company: 333
Four guided missile frigates (FFGs), HMAS Adelaide, Canberra, Sydney and Darwin, joined the RAN between 1980 and 1984.

The FFGs are long-range escort ships with roles involving interdiction, surveillance, reconnaissance, area air defence and anti-submarine warfare.

The principal weapons of the FFG are the Standard medium range anti-aircraft missile, and the Harpoon sea-skimming anti-surface missile, the latter having over-the-horizon capability. Both of these missiles are fired from the GMLS MK13 launcher carried on the forecastle.

The 76mm gun, located just forward of the funnel, has a very high rate of fire and is completely automatic.

For close-in anti-submarine work, two MK 32 triple torpedo tubes are carried, one each side amidships. For their main anti-submarine role, the FFGs are equipped with a flight deck and hangars and are capable of embarking two helicopters. The FFGs are equipped with a modern sonar system for the detection of submarines.

All ships are fitted with the Phalanx 20mm Close-in-Weapons System as a protection against anti-ship missiles such as the Exocet.

The FFGs are the first RAN ships to use gas turbines for main propulsion, and this, combined with a modern repair-by-replacement policy, permits a greatly reduced complement while allowing a very high availability for sea.

These ships can be underway from cold in less than 45 minutes, which is not possible with conventional steam-powered ships.

Two additional FFGs are being built in Williamstown, Victoria and are expected to enter service in the early 1990s. The two ships are to be named Melbourne and Newcastle.

Adelaide, Canberra and Sydney are the names of former RAN cruisers and an aircraft carrier (Sydney). Darwin is the first of its name in the RAN.

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<td>3,680 tonnes</td>
<td>138 metres</td>
<td>13.7 metres</td>
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<td>AMECON, Victoria</td>
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<th>Armament</th>
<th>Machinery</th>
<th>Speed Ships Company</th>
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<tr>
<td>Harpoon anti-ship and Standard anti-air missiles, MK 92 fire control system, one 76 mm gun, one Mk 15 Phalanx CWs, twin Mk 32 a/s triple torpedo tubes, two helicopters.</td>
<td>Two GE LM 2,500 gas turbines geared to one controlled pitch propeller</td>
<td>More than 30 knots</td>
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</table>

ABOVE: The Harpoon anti-ship missile arms the FFG. OPPOSITE: Guided missile frigates during exercises off the eastern coast.
The Royal Australian Navy has five operational Australian-built destroyer escorts.

The newest, HMA Ships Swan and Torrens, have received major refits while the earlier River class ships, HMA Ships Parramatta, Stuart and Derwent, have been extensively modernised to serve well into the 1990s.

All the ships are armed with twin 4.5 inch guns which are used with digital fire control radars and computers. The guns can be used for shore bombardment or can provide fire power against air or surface targets.

Close range air and surface defence is provided by the Seacat missile system which is controlled by a separate radar and computer. The Seacat missile system was developed in Britain and has been adopted by many of the world's navies.

A submarine threat can be met by using either the Australian-designed and built Ikara anti-submarine missile system, or the triple torpedo tubes carried on all the destroyer escorts. All ships are now fitted with the Australian designed and built Mulloka sonar equipment.

Ikara is a rocket-propelled guided missile which carries a homing torpedo toward its submarine target. The torpedo is dropped into the sea by parachute and is then acoustically homed onto the submarine target.

All ships in the squadron except Derwent carry the names of former RAN destroyers and sloops.

Eight ANZAC Ships (light patrol Frigates) are expected to enter RAN service in the 1990s to replace the River class destroyer escorts.
The Royal Australian Navy Submarine Squadron provides the Fleet with modern offensive and reconnaissance capabilities.

The squadron is based at HMAS Platypus, North Sydney, a shore establishment specifically designed to support the submarines.

The Oberon boats are very quiet (an essential submarine attribute) and boast long endurance which is an important factor in Australia’s area of interest. Each crew consists of 64 men who undergo specialist training to develop the skills needed for this demanding service. The training is primarily self-sufficient with maintenance and support of combat system software all being conducted in Australia. The primary weapons carried by the boats are the US MK48 long-range torpedoes and Harpoon anti-ship missiles. These weapons make the RAN Oberon a very capable conventional submarine.

In 1982 the RAN established a project team to select a new class of submarines to replace the Oberons in the 1990s. These new conventional submarines, based on a Swedish design, known as the Kockums Type 471, will incorporate the latest developments in submarine technology and provide Australia with a very effective force well into the next century.

In 1985 the Minister for Defence announced the intention to homeport submarines at HMAS Stirling, near Fremantle WA. HMAS Oxley has been based there since September 1987.

HMA Ships Oxley and Otway are named for earlier Australian submarines. Ovens and Onslow are named for early Australian pioneers while the name Orion was selected to preserve long-established links with the Royal Navy. Otama is an Aboriginal word meaning ‘dolphin’ — the symbol of the Submarine Arm.
Two prototype Bay Class Inshore Minehunters (MHIs), HMA Ships Rushcutter and Shoalwater, have been commissioned and are now being evaluated in Australia.

The ships are glass reinforced plastic catamarans. Each is non-magnetic and sufficiently silent not to activate acoustic mines. Both ships are fitted with a high definition sonar for minehunting and mine disposal equipment.

When a mine is located, a remotely operated mine disposal vehicle is deployed to identify the mine and if required places an explosive charge to destroy the mine.

The development of 'craft of opportunity' for minesweeping has progressed with the acquisition of three vessels, Koraaga, Salvatore V and Wave Rider are former fishing vessels which have been modified for a minesweeping role and are presently based at HMAS Waterhen in Sydney.

HMAS Curlew, another mine-countermeasures vessel, was modified in the UK before joining the Australian Fleet in 1962. She is a wooden-hulled minehunter, non-magnetic and sufficiently silent not to activate acoustic mines. Minehunting is carried out using a high definition sonar set to locate mines ahead of the ship.

When a mine is located, clearance divers go into the water to identify it and decide whether to render it safe and remove it, or to blow it up with an explosive charge which is remotely activated.

No. Name        Laid       Launched      First Commissioned
              Down       in RAN

1121 CURLEW    Apr.53  6.10.53  21.8.62
Builder       Montrose Shipyard, UK
Displacement  489 tonnes
Length        48.6 metres
Beam          8.5 metres
Armament     One 40/60mm Bofors gun
Machinery     Napier diesel engines
Speed         More than 15 knots
Ships Company 38

M80 RUSHCUTTER May.84  3.5.86  1.11.86
M81 SHOALWATER Sept.85  1987  1987
Builders   Carrington Shipways, NSW
Displacement 170 tonnes
Length       31 metres
Beam         9 metres
Armament    Two 0.5 inch machine guns, two PAP 104 remote operated mine disposal vehicles
Machinery   Two Poyaud diesel engines driving two independent Schottel propulsion steering units
Speed        10 knots
Ships Company 13
In September 1977 construction began on a new class of patrol craft to supplement and in due course replace the capabilities offered by the existing Attack class boats. The new craft were built to a British design with the first constructed by Brooke Marine in England. The remaining 14 were constructed in Australia by North Queensland Engineers and Agents Ltd of Cairns, Queensland.

The first of the Fremantle class were accepted in 1979 with the last entering service in early 1985.

The patrol boats are deployed to bases around Australia's coastline at Sydney, Cairns, Darwin and HMAS Stirling in Western Australia. The boats fulfil a wide variety of tasks from the tropical north to the inclement waters of Bass Strait, patrolling for unlicensed fishing craft and national civil coastal surveillance. In the event of war they would be tasked to control the waters close to the Australian mainland. Due to their small size the performance of the boats is limited in rough weather. The vessels are well prepared for their patrol duties as well as for any other operational requirements. Each is equipped with high definition navigation radar, high and ultra high frequency communications equipment, gyro compasses and echo sounder. In addition, they are equipped with a satellite navigation system which enables the ship’s position to be determined with great accuracy.

The Fremantle class patrol boats carry the names of the Bathurst class Australian Minesweepers which served during and after World War II.

### Specifications

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- **Builder**: North Queensland Engineers and Agents Ltd, QLD
- **Displacement**: 220 tonnes
- **Length**: 42 metres
- **Beam**: 7.15 metres
- **Armament**: One general purpose 40/60mm Bofors gun, one 81 mm mortar, two 0.5 inch cal. Browning machine guns
- **Machinery**: Two MTU 538 series 16 cylinder main propulsion engines. One Dorman 12 cylinder auxiliary propulsion engine.
- **Speed**: About 30 knots
- **Ships Company**: 22
The Amphibious Heavy Lift Ship HMAS Tobruk was the first purpose-built major amphibious ship in the RAN.

Tobruk's design is an update of the proven British Sir Bedivere class Logistic Landing Ship (LSL). She provides the Australian Defence Force with a heavy lift capability not available in any other Australian-owned ship.

The ship is designed to carry troops, stores and vehicles and to put them ashore without the aid of port facilities. To achieve this, the ship is equipped with a 70 tonne capacity derrick and carries two small landing craft as ship's boats. Tobruk has two landing spots for the operation of helicopters and can discharge cargo over bow and stern ramps. Tobruk can also carry two 60 tonne Army landing craft as deck cargo, or two self-propelled pontoons alongside.

In an established port, Tobruk can discharge cargo by its own heavy-lift derrick and cranes as well as over the bow and stern ramps onto a roll-on-roll-off terminal. If no port facilities are available, the ship can beach itself and lower the beam ramps to a beach causeway or onto pontoons, landing craft or amphibians.

Tobruk has the command and communications facilities to control all types of amphibious operations. She is equipped with a small hospital and accommodation for more than 500 troops. Her crew of 130 includes a small Army detachment.

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Builder: Carrington Slipways, NSW
Displacement: 5,800 tonnes
Length: 126 metres
Beam: 18 metres
Armament: Two 40/60 mm Bofors guns
Machinery: Two diesels
Speed: 17 knots
Ships Company: 130
Landing Craft: Two LCVP on davits, two LCM 8 can be carried as deck cargo
Helicopters: In support of amphibious operations
Troops: 350-550

ABOVE: An Army LC 8 landing craft is lifted from HMAS Tobruk by the ship's own heavy lift derrick.
LEFT: HMAS Tobruk.
Six landing craft heavy (LCH) are presently in service with the RAN.

The first ship, HMAS Brunei, joined the Fleet in January 1973. By the end of August 1973, four LCHs had been commissioned into the RAN — HMA Ships Brunei, Labuan, Tarakan and Wewak. Four others — HMA Ships Salamaua, Buna, Betano and Balikpapan were commissioned in the period up to mid 1974.

Balikpapan, the prototype LCH, was operated by the Army until September 1974.

Buna and Salamaua were handed over to the Papua New Guinea Defence Force in November 1974.

These sea-going ships, all built at Walkers Ltd Shipyards, Maryborough, Queensland, are each manned by two officers and 11 sailors.

From 1985 two LCHs, HMA Ships Betano and Brunei, were allocated as interim survey ships, but in 1988 were homeported to HMA Ships Waterhen in Sydney for service as diving tenders. HMA Ships Labuan, HMA Ships Tarakan and HMA Ships Balikpapan are assigned for naval reserve training to the Brisbane, Cairns and Darwin Port Divisions respectively. HMAS Wewak is held in reserve in Cairns.

The ships are all named in honour of World War II amphibious operations in which RAN ships and craft placed Australian Army units ashore or performed surveys prior to the landings.

The versatile LCHs can carry the heaviest equipment in the Army inventory (up to three Leopard tanks, for example).

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Laid Down</th>
<th>Launched</th>
<th>First Commissioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>L127</td>
<td>Brunei</td>
<td>July 71</td>
<td>15.10.71</td>
<td>5.1.73</td>
</tr>
<tr>
<td>L128</td>
<td>Labuan</td>
<td>Oct 71</td>
<td>29.12.71</td>
<td>9.3.73</td>
</tr>
<tr>
<td>L129</td>
<td>Tarakan</td>
<td>Dec 71</td>
<td>16.3.72</td>
<td>15.6.73</td>
</tr>
<tr>
<td>L130</td>
<td>Betano</td>
<td>Sept 72</td>
<td>5.12.72</td>
<td>8.2.74</td>
</tr>
<tr>
<td>L133</td>
<td>L126 Balikpapan</td>
<td>May 71</td>
<td>15.8.71</td>
<td>27.9.74</td>
</tr>
<tr>
<td>L134</td>
<td>Wewak</td>
<td>Mar 72</td>
<td>18.5.72</td>
<td>10.8.73</td>
</tr>
</tbody>
</table>

Builder: Walkers Ltd, QLD
Displacement: 316 tonnes
Length: 44.5 metres
Beam: 10.1 metres
Armament: Two 0.5 inch machine guns
Machinery: Two GE diesels
Speed: More than 9 knots
Ships Company: 2 officers, 11 sailors (or 2 officers, 13 sailors as survey ships)

ABOVE: An Army fire support vehicle drives off an LCH's bow ramp onto a beachhead.
LEFT: HMAS Betano, one of the RAN's six heavy landing craft.
RAN IN THE 1990s AND BEYOND

systems work will be done in Australia. It is estimated that at the peak of construction up to 650 jobs will be provided at the submarine construction facility in Port Adelaide. A significant amount of work associated with the project is flowing to other Australian states.

Displacement
Length
Speed
Patrol
Endurance
Ships company
Armament

ANZAC SHIPS

The new Frigate for the Navy is the German designed Meko 200. The frigates will have an operational range of 6,000 nautical miles with a speed of better than 27 knots. These ships will be able to operate alone or with the DDGs and the FFGs in more intensive operations. During the period of construction our five destroyer escorts will be phased out.

In its operational role, the new Frigate will have an advanced package of air surveillance radar, hull mounted sonar and electronic support systems. The ships will be able to carry the Navy’s new Seahawk helicopters for anti-submarine operations.

SAIL TRAINING SHIP Young Endeavour

The brigantine Young Endeavour was Britain’s Bicentennial gift to Australia. The Government has decided to use the ship for the benefit of Australia’s youth.

The RAN operates the ship on behalf of the Young Endeavour Youth Scheme. The Young Endeavour has a RAN crew of nine who conduct the training program and who are responsible for the safe and efficient operation of the ship.

Voyages on the Young Endeavour are open to young men and women between 16 and 24. Many young Australians have already experienced this unique and rewarding challenge.

SPECIFICATIONS

Length
Beam
Displacement

HMAS Westralia

The newly acquired underway replenishment ship HMAS Westralia will soon be performing the vital role of supplying fuel for warships and helicopters. The tanker will be based at HMAS Stirling on the west coast where it will provide greater flexibility in the deployment of naval ships. The other underway replenishment ship, HMAS Success, is based in Sydney.

HMAS Westralia is the largest ship in the RAN and can carry over 20,000 tonnes of fuel, including several thousand tonnes of aviation fuel for helicopters. Like HMAS Success it will be able to transfer fuel to warships at sea while underway. To offset the cost of the new tanker, the destroyer tender HMAS Stalwart is being withdrawn from operational service.

HMAS Westralia formerly known as Appleleaf has been in service as an auxiliary with the Royal Navy before entering service with the RAN.

The name Westralia dates back to World War II when a merchant ship bearing the name was requisitioned and armed for Australia’s war effort. The first HMAS Westralia entered Naval service as an armed merchant cruiser in January 1940 carrying out patrol and escort duties in the Indian and Pacific Oceans.

SPECIFICATIONS

Length
Beam
Displacement

OPPOSITE TOP: HMAS Westralia, pictured here as the Royal Navy Auxiliary ship Appleleaf, before commissioning in the RAN.

OPPOSITE: Sail Training Ship Young Endeavour.

OPPOSITE TOP: The Kockums Type 471 submarine
ABOVE: The Meko 200 Frigate

TYPE 471 SUBMARINES

The new submarines to be constructed for the RAN will be the most advanced conventional submarines in the world. The design is known as the Kockums Type 471. The six vessels will enter service from the mid-1990s and will replace our fleet of Oberon submarines.

There will be large scale involvement by Australian industry in the project, 70 per cent of the platform work and 45 per cent of the combat
Contemporary maritime operations demand that naval combat units be supplied with fuel, ammunition, food and stores at sea whilst underway. HMAS Success is designed for this task. She is capable of day and night replenishment to ships alongside and with her Wessex helicopter to other ships in company. Four main Replenishment at Sea, (RAS) stations are fitted, two of which have dual functions and can be used to transfer either fuel or solids. RAS operations are controlled from a Cargo Control Room amidships.

During solid cargo transfer the load is supported by a traveller riding on a tensioned highline between Success and a fixed point in the receiving ship. During fuel transfers, the highline is used to support a hose which hangs from several travelling saddles and which has a quick connecting probe to connect with the fuel receiving point in the ship being fuelled. The solids transfer stations are designed to handle sizeable loads of up to nearly 2 tonnes. The RAS system is designed to cope with the extreme demands caused by ship motion in rough weather, and works extremely well. Success thus enables RAN Fleet units to operate with a greater degree of flexibility and independence from shore support than has previously been possible.

The ship’s company of 205 is required to operate and maintain the propulsion, replenishment and auxiliary machinery and support systems in Success. Providing underway replenishment support to the fleet is a challenging and continuing task requiring technical proficiency and high seamanship standards.

As would be expected in a modern warship, accommodation and recreation areas are spacious and well designed. Meals are provided from one centralised galley including a bakery. The medical centre, includes an operating theatre, infirmary and dental surgery. The ship and its cargo is protected by a variety of modern fire detection and damage control equipment.

The previous HMAS Success was an ‘S’ Class destroyer commissioned into the RAN in 1920. She operated in Australian waters and was paid off in 1930.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Launched</th>
<th>Commissioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR304</td>
<td>SUCCESS</td>
<td>3.3.84</td>
<td>23.4.86</td>
</tr>
<tr>
<td>Builder</td>
<td>Cockatoo Island Dockyard, NSW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displacement</td>
<td>17,933 tonnes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>157.2 metres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beam</td>
<td>21.2 metres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armament</td>
<td>Three 40/60mm Bofors guns, two forward, one aft, four 0.5 inch machine guns, one utility helicopter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery</td>
<td>Two independent propulsion systems, each consisting of a 16 PC2-5V Pielstick non-reversing medium speed diesel engine, developing 7,640 kw at 520 RPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>19 knots (full load)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ships Company</td>
<td>205</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ABOVE: Replenishment at sea between HMAS Success and an FFG. OPPOSITE: HMAS Success.
HMAS Jervis Bay is the RAN’s training ship. Formerly the MV Australian Trader, she was built in Australia in 1969 as a roll-on-roll-off, passenger-vehicle vessel for the Australian National Line. In 1977 she was sold to the RAN and modified to undertake the training role.

The vehicle and cargo-carrying capabilities of Jervis Bay have been retained to provide the RAN with additional logistic support capability.

Jervis Bay’s primary role is to train junior officers in basic navigation and seamanship and the ship is fitted out accordingly. Modern training facilities installed include a second bridge to accommodate navigation training and a navigation classroom, equipped with two radar displays and chart tables for up to 40 trainees.

The standard of accommodation onboard is quite a departure from that normally associated with a modern warship.

Training onboard Jervis Bay is not restricted to RAN trainees. Most training cruises usually include a number of foreign officer trainees from South East Asian and Pacific Navies.

The ship’s name perpetuates her close links with the RAN College at Jervis Bay, and also commemorates the epic battle between HMAS Jervis Bay and the German pocket battleship Admiral Scheer during World War II in which the first Jervis Bay was sunk while protecting the convoy she was escorting.
Surveying of Australian and Papua New Guinea waters which, combined, involve 30,000km of coastline and cover about one-eighth of the earth's surface is the mammoth task entrusted to the RAN Hydrographic Service.

The stepped-up exploitation of Australia's vast mineral resources in recent years based on bulk-handling methods, has led to the development of new ports such as Gove, Weipa, Spring Bay, Dampier and Port Hedland. The largest bulk carriers in the world now call at Australian ports and there is a continuing need for new and more accurate surveys of shipping routes and harbour approaches.

HMA Ships Moresby, Flinders and the new Survey Motor Launches are engaged full time on this work while HMAS Cook carries out oceanographic research.

Moresby, based in Western Australia, is a large modern survey ship. She operates her own helicopter and carries advanced electronic surveying equipment. The 765 tonne Flinders, which carries out surveys mainly in the Barrier Reef area, is based at Cairns.

Cook, fitted with the most advanced oceanographic and survey equipment, is engaged on military and civilian oceanographic research including work for the CSIRO, universities and museums.

The first of the new Survey Motor Launches, HMAS Paluma, was launched in Feb 89, and delivered to the RAN on 1 May 89. The three others to be named (respectively) Mermaid, Shepparton and Benalla — are scheduled for launching and commissioning later in 1989.
The Royal Australian Navy has two general purpose ships, Bass and Banks, of the Explorer class. Bass transferred to the Darwin Naval Base in October 1985, for use as a Naval Reserve Training ship for the newly formed Reserve unit.

In November 1985, Banks transferred to Sydney to undertake the navigation duties previously performed by Bass. This involves undertaking practical navigation training on Sydney Harbour and adjacent coastal waters. With their deep draught they are good sea-keeping vessels providing relatively stable platforms.

It is perhaps fitting that GPV’s Bass and Banks have assumed navigation and training roles, tasks of which their illustrious namesakes would no doubt have approved.

Twenty Attack class patrol boats were built in Queensland shipyards for patrol and survey work in waters around Australia and Papua New Guinea.

A number of these vessels have since entered service with the Defence Forces of Papua New Guinea and Indonesia.

The remaining vessels, HMA Ships Adroit, Ardent and Aware were transferred to the RAN Reserve and now operate on regular training cruises.

One boat is attached to the reserve port division in Sydney, Fremantle, Adelaide, Hobart and Melbourne. During their service with the RAN they were used in a variety of tasks including fishery patrol and surveying duties.

Included in the ship’s equipment is high definition navigation radar, high and ultra high frequency radio transmitters and receivers, gyro and magnetic compasses and echo sounders.
SUPPORT CRAFT

LIGHTERS

Two water fuel lighters (WFLs) and three crane stores lighters (CSLs) are operated from the Garden Island Dockyard in Sydney. One WFL, No. 8004 is homeported to HMAS Stirling in Western Australia and WFL 8001 is based in Jervis Bay at HMAS Creswell.

The three CSLs are used as stores lighters and tugs for other non-propelled Navy craft.

WATER FUEL LIGHTERS

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>In Service</th>
<th>Builders</th>
</tr>
</thead>
<tbody>
<tr>
<td>8001</td>
<td>WARRIGAL</td>
<td>Oct. 84</td>
<td>Williamstown Naval Dockyard, VIC</td>
</tr>
<tr>
<td>8002</td>
<td>WALLABY</td>
<td>Feb. 83</td>
<td></td>
</tr>
<tr>
<td>8003</td>
<td>WOMBAT</td>
<td>Feb. 83</td>
<td></td>
</tr>
<tr>
<td>8004</td>
<td>WYGUNA</td>
<td>Oct. 84</td>
<td></td>
</tr>
</tbody>
</table>

Displacement: 1,210 tonnes

Length: 38 metres
Beam: 10.2 metres
Machinery: Two Harbour Master units
Speed: 8 knots
Ships Company: 4

CRANE STORES LIGHTERS

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>In Service</th>
<th>Builders</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>WATTLE</td>
<td>Aug. 72</td>
<td>Cockatoo Island Dockyard, NSW</td>
</tr>
<tr>
<td>02</td>
<td>BORONA</td>
<td>Sept. 72</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>TELOPIA</td>
<td>Oct. 72</td>
<td></td>
</tr>
</tbody>
</table>

Builders: Williamstown Naval Dockyard, VIC

Displacement: 1,210 tonnes
Length: 23.7 metres
Beam: 9.75 metres
Machinery: Two diesels
Speed: 8 knots
Ships Company: 5

TORPEDO RECOVERY VESSELS

TRV 801 operates from Jervis Bay and TRV 802 from HMAS Warriken in Sydney and TRV 803 from HMAS Stirling in Western Australia. All three vessels have been used as diving tenders and for training by the RANR.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>In Service</th>
<th>Builders</th>
</tr>
</thead>
<tbody>
<tr>
<td>801</td>
<td>TUNA</td>
<td>Jan. 70</td>
<td>Williamstown Naval Dockyard, VIC</td>
</tr>
<tr>
<td>802</td>
<td>TREVALLY</td>
<td>Sept. 70</td>
<td></td>
</tr>
<tr>
<td>803</td>
<td>TAILOR</td>
<td>Apr. 71</td>
<td></td>
</tr>
</tbody>
</table>

Builders: Williamstown Naval Dockyard, VIC

Displacement: 1,210 tonnes
Length: 23.7 metres
Beam: 9.75 metres
Machinery: Two Harbour Master units
Speed: 8 knots
Ships Company: 4

TUGS

Tammar and Quokka are homeported to HMAS Stirling in Western Australia.

The smaller Bronzewing class operates on Sydney Harbour from Garden Island.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>In Service</th>
<th>Builders</th>
</tr>
</thead>
<tbody>
<tr>
<td>2601</td>
<td>TAMMAR</td>
<td>Mar. 84</td>
<td>Australian Shipbuilding Industries WA</td>
</tr>
<tr>
<td>1801</td>
<td>QUOKKA</td>
<td>Dec. 83</td>
<td>Shoreline Engineering, VIC</td>
</tr>
<tr>
<td>501</td>
<td>BRONZEWIN</td>
<td>Dec. 68</td>
<td>Stannard Bros, NSW</td>
</tr>
<tr>
<td>502</td>
<td>CURRAWONG</td>
<td>1969</td>
<td>Perrin Engineering, QLD</td>
</tr>
<tr>
<td>504</td>
<td>MOLLYMAWK</td>
<td>1972</td>
<td>Perrin Engineering, QLD</td>
</tr>
</tbody>
</table>

Builders: Williamstown Naval Dockyard, VIC

Displacement: 1,210 tonnes
Length: 23.7 metres
Beam: 9.75 metres
Machinery: Three diesels
Speed: 13 knots
Ships Company: 9

Above Left: Wallaby
Above Right: Currawong
Left: Torpedo recovery vessel Trevally
Opposite: Tammar
Since 1983 the Fleet Air Arm has changed from supporting carrier based aviation to a force that integrates more closely with destroyers at sea. With the advent of the FFG class ships and HMAS Success there has been a large increase in the number of helicopter capable ships in the Fleet.

The RAN has met the challenge of this transition and to complete the FFG weapon system has ordered 16 Sikorsky S70B2 Seahawk helicopters. These very sophisticated helicopters are being acquired to carry out the roles of anti-submarine warfare and anti-surface ship surveillance and targeting. The Seahawks will effectively extend the range of ship sensors and permit long-range Harpoon missile firings to be conducted over the horizon from Navy's FFGs and DDGs.

In the interim the Fleet Air Arm is maintaining essential expertise in a wide range of aircraft in several different roles. These aircraft and roles are:

- Westland Sea King MK 50As are employed in anti-submarine warfare, operations in support of Army and search and rescue.
- Westland Wessex MK 31 Bs are used in operations in support of Army, Fleet utility tasks from HMAS Success and Tobruk and search and rescue.
- Bell Kiowa 206Bs are employed in communications and survey support operations from HMAS Moresby.
- Aerospatiale Squirrel AS 350Bs for light utility and training at sea in the FFG 7 class ships.
- Hawker Siddeley HS748 aircraft, are employed in electronic warfare training in support of all three services and are also employed as personnel and stores transport support aircraft.
- Jindivik pilotless target aircraft operate from Jervis Bay airfield to provide a realistic target aircraft for Navy, Air Force and Army missile practices.
THE FLEET

The Royal Australian Navy is centred around a modern ocean-going force of more than fifty combat and support ships, together with a strong Fleet Air Arm component comprising helicopters and some fixed wing aircraft. It is well armed and trained, technically advanced and possesses a comprehensive range of capabilities.

Guided Missile Destroyers
- 38 PERTH
- 39 HOBART
- 41 BRISBANE

Guided Missile Frigates
- 01 ADELAIDE
- 02 CANBERRA
- 03 SYDNEY
- 04 DARWIN

Destroyer Escorts
- 46 PARRAMATTA
- 48 STUART
- 49 DERMONT

Patrol Boats
- 203 FREMANTLE
- 204 WARRNAMBOOL
- 205 TOWNSVILLE
- 206 WOLLONGONG
- 207 LAUNCESTON

Landing Ship Heavy
- 208 WHYMALLA
- 209 IPSWICH
- 210 CHESSTOCK
- 211 BENDIGO
- 212 GAWLER

Landing Craft Heavy
- 213 GERALDTON
- 214 DEIBBO
- 215 GEELONG
- 216 GLADSTONE
- 217 BURBURY

Submarines
- 50 SWAN
- 53 TORRENS

Mine Countermeasures Vessels
- 57 OXLEY
- 70 OVENS
- 59 OTWAY
- 61 ORION
- 60 ONSLOW
- 62 OTAMA

Training Ship
- GT203 JERVIS BAY

Survey and Oceanographic Ships
- 73 MURESBY
- 312 Flinders
- 291 COOK

L50 TOBRUK

Lighters
- 312 FUNDERS

Torpedo Recovery Vessels
- 301 TUNA
- 302 TREVALLY
- 303 TAILOR

Tugs
- 2601 TAMMAR
- 1801 QUOKKA

Patrol Boats
- 8001 WARRIGAL
- 8002 WALLABY
- 8003 WOMBAT
- 8004 WYGUNA

Survey and Oceanographic Ships
- 801 WATTLE
- 802 BOROPIA
- 803 TELOPHA

Mines
- 501 BRONZEWING
- 502 CURRAWONG
- 504 MOLLYHAWK

Tugs
- 501 BRONZEWING
- 502 CURRAWONG
- 504 MOLLYHAWK